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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,233	03/02/2004	Patrick Kappler	FR-AM1933 NP	3627

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ARKEMA INC.  
PATENT DEPARTMENT - 26TH FLOOR  
2000 MARKET STREET  
PHILADELPHIA, PA 19103-3222

EXAMINER
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HU, HENRY S

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 09/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/791,233

Applicant(s)

KAPPLER ET AL.

Examiner

Henry S. Hu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on Amendment of July 5, 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 1-6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-11 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. It is noted that USPTO has received a certified copy of priority paper of "**FR 03.02532**" filed on July 5, 2005. **A foreign priority date of March 3, 2003 is thereby granted.**

This Office Action is in response to Amendment filed on July 5, 2005. Claims 7-11 were amended, while no new claim was added. To be specific, parent **Claim 7** and its dependent Claim 10 were both amended to only clarify the optional use on a potassium alkylsulphonate, while dependent Claims 8-9 and 11 were amended to use polymer as "a PVDF". The Applicants have alleged that no new matter was added. In view of above amendment, claim objections are therefore withdrawn. **Claims 1-11 are now pending**, while the nonelected **Claims 1-6** are still withdrawn from consideration. An action follows.

### *Response to Argument*

2. Applicant's argument filed on July 5, 2005 has been fully considered but they are not persuasive. The focal arguments related to the patentability will be addressed as follows: In view of the Applicants' argument on pages **2-3** of Remarks along with only cosmetic corrections on parent Claims 7-11, 102(b) rejection by Blaise is withdrawn due to the amendment to **only** optionally use a potassium alkylsulphonate, while other rejections including ODP and 103(a) are sustained. Additionally, new set of rejections is applied after a new and further search.

### ***Double Patenting***

3. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

4. Claims 7-11 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of **Claims 7-11** of copending Application No. **10/791,226**, now **USPG-PUB 2004/0225095 A1 to Kappler et al.** (with priority date 3-3-2003) for the reasons set forth in **paragraphs 4-5 of office action dated 4-1-2005 as well as the discussion below.**

The Applicants allege that Claims 7-11 of the copending Application **10/791,226** are withdrawn, and will be cancelled when present claims are allowed.

5. Claims 7-11 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over **Claims 1-6** of copending Application No. **10/791,226**, now **USPG-PUB 2004/0225095 A1 to Kappler et al.** (with priority

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date 3-3-2003) for the reasons set forth in paragraphs 4-5 of office action dated 4-1-2005 as well as the discussion below.

**The Applicants have not provided any response** (see page 1 of Remarks).

*Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. *The limitation of parent Claim 7 in present invention relates to polyvinylidene fluoride (PVDF) homopolymer or copolymer comprising sodium acetate, less than 300 ppm of surface-active additive and chain ends: -CF<sub>2</sub>-CH<sub>2</sub>-O-SO<sub>3</sub><sup>-</sup> originating from the use of the persulphate*

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*as initiator, and optionally a potassium alkylsulphonate. See other limitations of dependent Claims 8-11.*

8. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blaise et al. (US 4,025,709) in view of Sharma et al. (US 6,462,109 B1) for the reasons set forth in **paragraphs 13-14 of office action dated 4-1-2005 as well as the discussion below.**

9. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blaise et al. (US 4,025,709) in view of Sharma et al. (US 6,462,109 B1), and further in view of Wu et al. (US 6,214,251 B1) for the reasons set forth in **paragraph 16 of office action dated 4-1-2005 as well as the discussion below.**

10. **Applicants:** Applicant has claimed in parent Claim 7 an unexpected way of obtaining a polyvinylidene fluoride (PVDF) homopolymer or copolymer comprising (A) sodium acetate, (B) less than 300 ppm of surface-active additive, and (C) chain ends as -CF<sub>2</sub>-CH<sub>2</sub>-O-SO<sub>3</sub><sup>-</sup> originating from the use of the persulphate as initiator. Additionally, it is optional to comprise a potassium alkylsulphonate.

With respect to 103 rejection by a combination of Blaise “709” and Sharma “109”, as pointed out on page 2 of Remarks the Applicants allege that the above-mentioned prior art, in combination or alone, fails to teach or suggest the required “less than 300 ppm of surface-active additive” for PVDF polymer as following:

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11. With respect to the primary reference “709”, the Applicants allege that **“709” would only obtain PVDF having level of surfactant in the range of 550-2200 ppm** (see page 2 of Remarks as well as on page 1 at lines 28 – page 2 at line 5 of specification). The secondary reference “109” is using a surfactantless polymerization and is **only applied to vinyl monomer other than fluorinated monomers including VDF**. Additionally, “109” does not mention using sodium acetate at all. A linking motivation is thereby not existed. Therefore, Blaise “709” and Sharma in combination or alone does not describe the claimed PVDF polymers of present application.

12. **Examiner:** In view of the fact that parent **Claim 7** has been only amended to clarify the **optional use on potassium alkylsulphonate**, the previous 103(a) rejection for Claims 7-9 is sustained. The key point is that “709” has already added sodium acetate, potassium persulfate and a fluorinated emulsifier to prepare PVDF polymers, the only thing being silent is **level of surfactant less than 300 ppm**. **Sharma** has taught that in the course of making polymers from vinyl-containing monomers, surfactantless polymer latex can be effectively obtained by using **sulfo-polyester stabilizer** with an advantage as a more durable and lasting coating composition may result since no surfactant is used.

As pointed out by the Applicants, Sharma’s system can be applied to many types of vinyl-containing monomers as specified on column 8 at line 39 – column 9 at line 22, the key point is that **Sharma “does not” rule out the use of fluorinated monomer(s) (particularly see**

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**the statement on column 8, line 41-45**). As already known in the art, VDF monomer can be copolymerized with many of the monomers mentioned above (particularly see using other comonomers on column 2 at line 21-32 to prepare various PVDF copolymers). It is noted that the difference may be mainly on the degree of reactivity in the case of making PVDF copolymers as long as **sulfo-polyester stabilizer** is not poisoned by other component. However, such a critical limitation is not included as a limitation on parent Claim 7. Therefore, Applicants may need to prove that such a choice (even a single case) to use Sharma's surfactantless system is not existed in making PVDF polymers.

13. In light of the fact that copolymers produced by all the involved references are containing similar type of non-fluorinated vinyl-containing monomers as well as VDF monomer can be used to copolymerize with many of such mentioned vinyl-containing monomers, one having ordinary skill in the art would have therefore found it obvious to **modify Blasie's polymerization process in the course of making PVDF copolymers by replacing the traditional surfactant with sulfo-polyester stabilizer** as taught by Sharma. One would expect one advantage is to obtain a final PVDF latex product without the presence of any surfactant. **A more durable and lasting coating composition may be thereby resulted.**

According to MPEP, unexpected results "cannot" form a basis for rebutting an anticipation rejection under 35 USC "102". In re Malgari, 499 F.2d 1297, 1302, 182 USPQ 549. In the instance case only 103(a) rejection is applied, the issue of superior finding from present application in comparing is not included as a limitation of parent Claim 7.



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14. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blaise et al. (US 4,025,709) in view of McCarthy et al. (US 5,955,556).

Regarding the limitation of parent **Claim 7**, **Blaise et al.** disclose a process for the emulsion **polymerization or copolymerization of vinylidene fluoride** in the presence of (A) **potassium persulfate** (free radical initiator), (B) a fluorinated emulsifier, (C) **sodium acetate** and (D) paraffin (column 1, line 65 – column 2, line 1; column 2, line 40-43).

The Blaise reference is silent about **“less than 300 ppm of surface-active additive”** on the PVDF polymers. **MaCarthy et al.** teach that in the course of making various types of VDF-containing polymers (see column 3, line 49-54; also see working examples), surfactantless polymer latex can be prepared (abstract, line 1-10; column 1, line 8-18). By doing so, a **controllable and improved process in particle number, particle size and/or particle size distribution can be obtained (particularly see abstract, line 7-9).**

In light of the fact that polymers produced by the involved references are VDF-containing polymers, which can be obtained through free radical induced emulsion polymerization and the like. Therefore, one having ordinary skill in the art would have found it obvious to **modify Blaise’s polymerization process by adopting the surfactantless process** as taught by McCarthy. One would expect one advantage is to obtain a final PVDF latex product

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without the presence of any surfactant. Therefore, a controllable and improved process in particle number, particle size and/or particle size distribution can be obtained.

15. Regarding **Claim 8**, the claimed fluorinated surfactant having a formula of  $R_F\text{-COOSO}_3\text{H}$  is included in Examples 1-3 (column 3, line 17). Specifically, perfluorooctanoic acid is used.

Regarding **Claim 9**, such obtained PVDF homopolymer or copolymer would only carry some sodium acetate in a residual amount after work up the polymerization product. The residual amount is less than 0.11 grams per process accordingly (column 2, line 42).

16. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blaise et al. (US 4,025,709) in view of McCarthy et al. (US 5,955,556) as applied to Claims 7-9, and further in view of Wu et al. (US 6,214,251 B1).

Regarding **Claims 10-11**, the discussion of the disclosures of the prior art of Blaise/McCarthy for Claims 7-9 of this office action is incorporated here by reference. The combination of Blaise and McCarthy is silent about including the claimed potassium alkylsulphonate in the polymerization process. Wu et al. teach that in the course of making various PVDF polymers, the alkylsulfonate salt is added in polymerization process (column 5, line 22-25; column 17, line 24-30; column 18, line 43-46). By doing so, such alkylsulfonate-modified PVDF polymers are very useful in making polymer electrolyte as matrix polymer component (column 5, line 3-5; column 3, line 52-56).

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In light of the fact that polymers produced by all the involved references are containing VDF monomers, which can be obtained through free radical induced emulsion polymerization and the like. Therefore, one having ordinary skill in the art would have found it obvious to **modify Blasie/McCarthy's surfactantless copolymerization process by adding a compound of alkylsulphonate salt** as taught by Wu. One would expect one advantage is to obtain a final PVDF latex product modified with alkylsulfonate salt. A more diversified PVDF product useful in making polymer electrolyte as the matrix polymer component can be thereby obtained.

### ***Conclusion***

17. Applicant's amendment **necessitated the new ground(s) of rejection presented in this Office action**. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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18. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Dr. Henry S. Hu whose telephone number is **(571) 272-1103**. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The fax number for the organization where this application or proceeding is assigned is (703) 872-9306 for all regular communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Henry S. Hu

Patent Examiner, art unit 1713, USPTO

August 30, 2005

  
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